

Application No.: 09/988,650
Amendment dated April 5, 2005
Reply to non-final Office Action dated October 6, 2003

Docket No.: 8733.536.00

REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the subject application. The Non-Final Office Action of October 6, 2003 has been received and its contents carefully reviewed.

By the present amendment, Applicants hereby amend claims 1 and 4 and respectfully submit no new matter has been entered.

In the Office Action, the Examiner rejected claims 1-12 under 35 U.S.C. § 102(e) as anticipated by Yoshihara et al. (U.S. Pat. No. 6,115,016); rejected claims 13-16, 18, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Yoshihara et al. in view of Takabayashi (U.S. Pat. No. 6,573,882); and objected to claims 17 and 19 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The rejections of the claims are respectfully traversed and reconsideration of the claims is requested in view of the following remarks.

Applicants appreciate the Examiner's indication of allowable subject matter in claims 17 and 19.

The rejection of claims 1-12 under 35 U.S.C. § 102(e) as anticipated by Yoshihara et al. is respectfully traversed and reconsideration is requested.

Claim 1 is allowable over the cited references in that claim 1 recites a combination of elements including, for example "...a signal processing circuit connected to [a] data input driver and electrically controlling a luminance of each of the light sources." None of the cited references, including Yoshihara et al., singly or in combination, teach or suggest at least this feature of the claimed invention. Accordingly, Applicants respectfully submit that claims 2-12, which depend from claim 1, are also allowable over the cited references.

Further, the Examiner cites Yoshihara et al. as teaching "...a signal processing circuit 31 (a control signal generating circuit and image memory 31) for receiving image data DD for determine the luminance value of each of the light sources based on the determined lamination data... (...col. 8, line 6-16...)."

Applicants respectfully submit, however, Yoshihara et al. states at column 8, lines 17-53:

“In FIG. 5, the control signal generating circuit/image memory 31 is given display data DD to be displayed in the liquid crystal panel 21 by a personal computer or another external device. The control signal generating circuit/image memory 31 temporarily stores the display data DD to the image memory and then outputs the data in each pixel unit (hereinafter referred to as pixel data PD) to a data driver 32 in synchronization with a synchronous signal SYN...

The control signal generating circuit/image memory 31 outputs a synchronous signal SYN to a scan driver 33, a reference voltage generating circuit 34, and a back light control circuit/driving power source 35...

The back light control circuit/driving power source 35 gives the driving voltage to the back light 22 in synchronization with the synchronous signal SYN which is given by the control signal generating circuit/image memory 31 so as to make the LED array 7 of the back light 22 emit light.

...as shown in FIG. 4(a), the back light control circuit/driving power source 35 so controls that the LEDs emit red, green, and blue lights during the first, second, and third sub-frames, respectively and further emit all these colors in the fourth sub-frame in synchronization with the synchronous signal SYN.”

Further, at column 9, lines 7-11, Yoshihara et al. states “As a result of the above-mentioned emission control of the back light 22 by the back light control circuit/driving power source 35... the above-mentioned displaying control method of a liquid crystal displaying apparatus ...can be realized...”

Accordingly, Applicants respectfully submit Yoshihara et al. fails to teach “a signal processing circuit 31 ...for determine the luminance value of each of the light sources based on the determined lamination data,” as asserted by the Examiner. Moreover, and assuming *arguendo* that Yoshihara et al. actually did teach “a signal processing circuit 31 ...for determine the luminance value of each of the light sources based on the determined lamination data,” as asserted by the Examiner, Applicants respectfully submit Yoshihara et al. still fails to teach or suggest, either implicitly or explicitly, wherein the signal processing circuit 31 controls “a luminance value of each of the light sources.”

The rejection of claims 13-16, 18, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Yoshihara et al. in view of Takabayashi is respectfully traversed and reconsideration is requested.

Claim 13 is allowable over the cited references in that claim 13 recites a combination of elements including, for example "...converting frame-based image signal data into luminance values Ra, Ga, and Ba that are to be produced during sub-frames of each frame period, wherein each sub-frame is one-third of a frame period; and driving the Red, Green, and Blue light sources in sequential sub-frames so as to produce respective luminances Ra, Ga and Ba." None of the cited references, including Yoshihara et al. or Takabayashi singly or in combination, teach or suggest at least these features of the claimed invention. Accordingly, Applicants respectfully submit that claims 13-16, 18, and 20, which depend from claim 13, are also allowable over the cited references.

Further, the Examiner cites Yoshihara et al. as failing to expressly teach "...converting frame-based image signal data into luminance values Ra, Ga, and Ba, which are average luminance values." Attempting to cure the deficiencies of Yoshihara et al., the Examiner cites Takabayashi as teaching "a back lighting method... using R, G, and B color light sources 1; wherein frame-based image signal data are read for each frame F by utilizing three sub-fields, the liquid crystal alignment and the light source luminance are synchronously switching and illuminating in the respective sub-fields for providing average luminance values..."

Applicants respectfully submit, however, Takabayashi states at column 3, line 60 - column 4, line 12,

"FIG. 1 is a time chart for illustrating an embodiment of the picture display method according to the present invention. Referring to FIG. 1, at (a) is shown time for reading data for switching by a liquid crystal device 3... As shown in FIG. 1, one field F is a period for display one frame of picture, and one field is divided into three equal sub-fields of a first sub-field SF1, a second sub-field SF2 and a third sub-field SF3. Accordingly, in the case of effecting a picture display by using a plurality of fields F, these first sub-field SF1, second sub-field SF2 and third sub-field SF3 are sequentially repeated.

Accordingly, for displaying a color picture by using the display apparatus, the data reading for switching by the liquid crystal

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device is sequentially performed with respect to picture data S1, S2 and S3 corresponding to the sub-fields SF1, SF2 and SF3, respectively. The data S1, S2 and S3 are read earlier by a period of nearly one sub-field than the switching sub-fields SF1, SF2 and SF3, respectively."

Accordingly, Applicants respectfully submit Takabayashi fails to teach "converting frame-based image signal data into luminance values Ra, Ga, and Ba that are to be produced during sub-frames of each frame period," as required by the presently claimed invention.

Applicants believe the application in condition for allowance and early, favorable action is respectfully solicited. Should the Examiner deem that a telephone conference would further the prosecution of this application, the Examiner is invited to call the undersigned attorney at (202) 496-7500. If the Examiner deems that a telephone conversation would further the prosecution of this application, the Examiner is invited to call the undersigned at (202) 496-7500.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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Accordingly, Applicants respectfully submit Takabayashi fails to teach “converting frame-based image signal data into luminance values Ra, Ga, and Ba that are to be produced during sub-frames of each frame period,” as required by the presently claimed invention.

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